

### Abstract of the Disclosure

Methods and apparatus for non-invasively verifying human identities using near-infrared spectroscopy. Near-infrared tissue spectra can be obtained by projecting near-infrared radiation into skin on the underside of human forearms and capturing the light  
5 reflected back and out through the tissue. The tissue spectrum collected preferably includes primarily diffuse reflected light reflected from the inner dermis. Multiple tissue spectra and identities can be collected from individuals for whom identity verification may later be desired. The tissue spectra for each individual can be analyzed on a computer, and the spectra for each individual clustered or classified together using tools  
10 such as linear discriminant analysis. A target individual seeking identity verification can submit both a purported identity and a near-infrared tissue spectrum for analysis through near-infrared spectroscopy of the forearm. Similarity between the target spectrum and the multiple spectra for the purported identity in the spectral database is determined and identify verified or not verified based on the degree of similarity.

The undersigned hereby certifies that the paper or papers, as described hereinabove, are being deposited in the United States Postal Service, "Express Mail Post Office to Addressee" having an Express Mail Mailing label number of:

EL324186339US

in an envelope addressed to:  
Assistant Commissioner for Patents  
Washington, DC 20231

on this 8th day of October 19 99

Crompton, Seager & Tufte, LLC

By: Kathleen L. Bockley